Matteo Riondato

CONTACT INFORMATION

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RESEARCH INTERESTS

Data mining, graph mining, randomized algorithms, social network analysis, privacy issues in data mining, statistical learning theory, distributed/parallel architectures for big data.

EDUCATION

Brown University, Providence, Rhode Island, USA
Ph.D. Candidate, Computer Science, *in progress since Sept. 2009. Expected completion: May 2014*

- Dissertation Topic: *Randomized algorithms for big data analytics*
- Advisor: Prof. Eli Upfal

M.S., Computer Science, May 2010

Università di Padova, Padua, Italy
Laurea Magistrale (M.S.) *cum laude*, Computer Engineering, July 2009

- Master Thesis Topic: Top-K Frequent Itemsets Mining through Sampling

Laurea (B.S.), Information Engineering, July 2007

PUBLICATIONS

M. Riondato, J. A. DeBrabant, R. Fonseca, and E. Upfal. PARMA: A parallel randomized algorithm for association rules mining in MapReduce. In X.-w. Chen, G. Lebanon, H. Wang, and M. J. Zaki, editors, *Proceedings of the 21st ACM International Conference on Information and Knowledge Management, CIKM 2012, October 29 – November 02, 2012, Maui, HI, USA*, pages 85–94. ACM, 2012.

M. Riondato and E. Upfal. Efficient discovery of association rules and frequent itemsets through sampling with tight performance guarantees. In P. A. Flach, T. De Bie, and N. Cristianini, editors, *Machine Learning and Knowledge Discovery in Databases*, volume 7523 of *Lecture Notes in Computer Science*, pages 25–41, 2012. Full version: *CoRR*, abs/1111.6937, available from `http://arxiv.org/abs/1111.6937`, 2012.

A. Pietracaprina, G. Pucci, M. Riondato, F. Silvestri, and E. Upfal. Space-round tradeoffs for MapReduce computationseduce computations. In U. Banerjee, K. A. Gallivan, G. Bilardi, and M. Katevenis, editors, *International Conference on Supercomputing, ICS 2012, Venice, Italy, June 25–29, 2012*, pages 235–244. ACM, 2012.

M. Akdere, U. Çetintemel, M. Riondato, E. Upfal, and S. B. Zdonik. Learning-based query performance modeling and prediction. In *Proceedings of the 28th International Conference on Data Engineering, ICDE 2012, April 1–5, 2012, Washington, DC, USA*, 2012.

M. Riondato, M. Akdere, U. Çetintemel, S. B. Zdonik, and E. Upfal. The VC-dimension of SQL queries and selectivity estimation through sampling. In D. Gunopulos, T. Hofmann, D. Malerba, and M. Vazirgiannis, editors, *Machine Learning and Knowledge Discovery in Databases - European Conference, ECML PKDD 2011, Athens, Greece, September 5–9, 2011, Proceedings, Part II*, volume 6912 of *Lecture Notes in Computer Science*, pages 661–676. Springer, 2011.

M. Akdere, U. Çetintemel, M. Riondato, E. Upfal, and S. B. Zdonik. The case for predictive database systems: Opportunities and challenges. In *CIDR 2011, Fifth Biennial Conference on Innovative Data Systems Research, Asilomar, CA, USA, January 9–12, 2011, Online Proceedings*, pages 167–174. www.cidrdb.org, 2011.

A. Pietracaprina, M. Riondato, E. Upfal, and F. Vandin. Mining top-K frequent itemsets through progressive sampling. *Data Mining and Knowledge Discovery*, 21(2):310–326, 2010.

M. Riondato. Jails, Chapter 16. In *The FreeBSD Handbook*, `http://www.freebsd.org/handbook`.

UNDER SUBMISSION

M. Riondato and E.M. Kornaropoulos. Fast estimation of betweenness centrality through sampling.

A. Anagnastopoulos, L. Becchetti, A. Fazzone, I. Mele, M. Riondato. The importance of being experts: efficient max-finding in crowdsourcing.

M. Riondato and F. Vandin. Controlling false positives in frequent itemsets mining through the VC-dimension.

M. Riondato and E. Upfal. Efficient discovery of association rules and frequent itemsets through sampling with tight performance guarantees (extended version).

M. Riondato, M. Akdere, U. Çetintemel, S. B. Zdonik, and E. Upfal. The VC-dimension of SQL queries and selectivity estimation through sampling (extended version).

Invited Talks

Fast Betweenness Estimation through Sampling. *Data Management Group Seminar, Boston University, MA*, Oct 17th 2013.

Fast Betweenness Estimation through Sampling. *Lab Research Seminar, Yahoo! Research Barcelona, Spain*, Jun 13th 2013.

Fast Betweenness Estimation through Sampling. *Advanced Computing Group Talk, Department of Information Engineering, University of Padua, Italy*, May 30th 2013.

Statistical Learning Theory meets Knowledge Discovery: Randomized Algorithms for Big Data Analytics. *Brown CS Industrial Partners Program Symposium*, Apr 25th 2013

Approximate aggregate database queries through sampling. *Invited Lecture for CSCI-2950-T, Brown University*, October 2011.

Graphs algorithms in MapReduce: design choices and optimizations. *Invited Lecture for CSCI-2950-U, Brown University*, September 2011.

Statistical Learning Theory meets Databases. *Advanced Computing Group Talk, Department of Information Engineering, University of Padua, Italy*, June 2011.

Awards

Brown University Dissertation Fellowship, Fall 2013

Yahoo! Research Summer Internship, Summer 2013

Research Fellowship from MIUR of Italy under Project AlgoDeep prot. 2008TFBWL4, Summer 2011.

Brown University Graduate Fellowship, Academic Year 2009-10

Other Academic Experience

Yahoo! Research Barcelona, Barcelona, Spain
Summer Intern Research Scientist in the Web Mining Group **June – August 2013**

- Worked with Dr. Francesco Bonchi and others of the Web Mining Group on algorithms for graph summarization and frequent itemsets mining in data stream in a distributed fashion.

Summer School on Massive Data Mining, Copenhagen, Denmark
Student **August 2012**

- Attended the Summer School on Massive Data Mining organized by Prof. R. Pagh at IT University of Copenhagen.

Sapienza Università di Roma, Rome, Italy
Visiting Ph.D. Student **June – July 2012**

- Worked with Prof. S. Leonardi, A. Anagnostopoulos, and L. Becchetti on algorithms for a model of crowdsourcing computation, and on algorithms for MapReduce.

Università di Padova, Padua, Italy
Research Fellow **May – July 2011**

- Worked with Prof. A. Pietracaprina, G. Pucci, and F. Silvestri on "The Map-Reduce Paradigm: computational model and algorithms". Funded by MIUR of Italy under Project AlgoDEEP prot. 2008TFBWL4.

Chalmers University of Technology, Gothemburg, Sweden
Visiting Ph.D. Student **August 2010**

- Worked with Prof. Devdatt Dubhashi and helped organizing a seminar on Probability and Computing.

Brown University, Providence, Rhode Island, USA
Visiting Grad Student **October 2008 – June 2009**

- Worked with Prof. Eli Upfal on master thesis *Top-K Frequent Itemsets Mining through Sampling.*

Teaching Training and Experience

The Harriet W. Sheridan Center for Teaching and Learning (Brown University), Providence, Rhode Island, USA

- Teaching Certificate I: Reflective Learning, AY 2013–14

Brown University, Providence, Rhode Island, USA

- Teaching Assistant, Probability and Computing, Spring 2012, Spring 2013, Spring 2014
- Teaching Assistant, Probabilistic Methods in Computer Science, Fall 2010

Service

External/Sub- reviewer for the following conferences

- RANDOM'11, ICS'12, IPDPS'12, WSDM'13, MFCS'13, BigData'13, WSDM'14.

Brown University Graduate Student Council
President **April 2011 – December 2012**

- Represented the interests of the entire graduate students community (approx. 2000 students) with the university administration and the broader community at all levels. Previously held positions include Vice-President of Administration (Jan – April 2011) and representative for the Computer Science Department (Sep 2009 – April 2011).

Brown University Graduate Council
Student Representative **September 2011 – May 2013**

- Represented the interests of the graduate students community in the highest body governing graduate education in the University.

Brown University Strategic Planning Committee on Doctoral Education
Student Representative **September 2012 – May 2013**

- Represented the interests of the graduate students community to develop the presidential strategic plan for Brown University.

Brown Computer Science Theory Lunch
Organizer **January – December 2010**

- Responsible for organizing the weekly meeting of the Theory Group.

The FreeBSD Project
src Committer **January 2006 – June 2013**

- Developer with write access on the main source repository. Worked on FreeSBIE, a Live-CD distribution of the FreeBSD operating system. Release Engineer for FreeSBIE 2.X. Also worked on handling and solving bug reports of various nature.

Citizenship

Italian